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former case 245° passed into the chimney which is now passing into the water. If this water, which in the last case abstracted 245° from the tubes, be now conducted into the spaces around the fire-box, it will require 245° less to convert it into steam. If a total heat of 1200° are required for its constitution as steam, then deduct 60° from 1200° and we have 1140° as the amount of heat required from the fire-box. If out of 1140° we effect a saving of 245° , we save 21 per cent of fuel.

“By this improvement, therefore, we prevent the deposit of sediment amongst the tubes to the same extent that we remove the evaporation from that part to the fire-box, which latter may be more easily cleaned and repaired, if constructed with that view.

“Secondly, we get up steam much more rapidly.

“Thirdly, we have in one compartment water free from turbulent motion, in consequence of which the action of a float for regulating a feed-apparatus will be much more certain.

“And, lastly, we have an important saving in fuel.”

No. XXVIII.

ON WROUGHTON'S SELF-ACTING GLASS VENTILATOR.

WROUGHTON'S self-acting glass ventilator consists of a mahogany vertical frame, seventeen inches high, and fourteen inches wide, standing on a platform fourteen inches long and eighteen inches wide. In the frame is fixed a plate of glass, in which are ten horizontal apertures, each two inches and a half long, and half an inch wide. On the internal side of the glass are four

vertical brass slides, in which work as many pieces of glass, fixed in a brass case, as there are apertures in the plate, but somewhat larger, in order entirely to cover them when necessary.

The two sets of glass covers are suspended from a small brass beam, working on a pivot attached to the glass. A small ivory piston, working with a nut and screw in a glass bent tube, is attached to one set of glass covers.

The glass tube contains a column of mercury, altogether about twelve inches in length, but divided at top into two arms, over which are two vertically placed glass tubes, about ten inches in length, and bent over at top, and returning down to the bottom of, and close to, the first tubes; these tubes are filled with spirits of wine, which, when expanded by heat, acts in conjunction with the mercury (with which it is in contact) to elevate and depress the glass-covers, so as to admit fresh air in proportion to the amount required to keep the temperature of the apartments at a fixed point, which is ascertained by a scale marked on the glass plate.

No. XXIX.

ON THE NATURAL BREAKWATER OF THE
PORT OF PISA.

By MAJOR PARLBY.

April 17, 1844.

DR. ROGET, SEC. R.S. V.P. IN THE CHAIR.

THE object of the author in his communication of April 8, 1844, addressed to the Society, is to shew that